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MANAGEMENT OF HOUSE BATS

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Montana
Department of Agriculture
Capitol Station
Helena, MT 59620
1990

What Are Bats?

Montana's bats are small, insect-eating mammals with true flight ability. Bats are nocturnal. They fly at night in search of insects that they locate with an echolocation system. Bats emit a series of high-frequency sounds, inaudible to human hearing, which bounce off flying insects and other objects in their path. The echo tells the bat the direction, distance and speed of the object. The bat, using its echolocation system, can capture flying insects and avoid obstacles. Although echolocation is the bats' primary method of navigation and hunting they are not "Blind as a bat" but have reasonably good vision. When inactive, bats hide in dark, secluded retreats or roosts.

All 14 species of Montana's bats are migratory, living part of the year in different locations. Spring to fall is spent feeding and rearing young. In winter, they hibernate in caves, trees, buildings and other suitable sites in Montana and elsewhere. Some bats are solitary or found together in small numbers. Other species are gregarious and form roosting or nursury colonies in caves or man-made structures.

Bats in Montana are generally considered beneficial because they eat insects. Some bats consume up to one-half their weight in insects per night. A typical colony of little brown bats can consume more than 100 lbs of insects in one summer. Many of these insects, such as mosquitoes, can be harmful or at least annoying.

Bats inhabit natural roosting sites, such as caves, logs, crevices, cracks and holes in trees. Clearing of forests and other human activities has reduced the number of natural roosting sites for bats. Thus, some bat species have turned to roosting in buildings and other man-made structures.

Bats only live where food supplies are adequate. Most bats are found near lakes, streams, potholes and marshy areas where insect populations are high.

What Problems Do Bats Cause?

Bats can become a nuisance when they use man-made structures rather than their normal roosts in trees, logs and caves. Many bat complaints arise from people's fears and not from real damage. Folklore, superstitions and the unique nature and lifestyle of bats have all contributed to the mistrust and fear of these animals. As a rule, these beliefs and fears are unfounded. Bats are not aggressive nor do they attack people or pets, but will display defensive behavior if provoked. However, some valid reasons for bat management can and do exist.

The little brown bat and the big brown bat are the most common species of bats in Montana. They live in colonies that number from several bats to hundreds of individuals, and often inhabit buildings. Thus, the little brown and big brown bat are normally responsible for most complaints from home owners. Most complaints occur during spring to fall when bats are active in and around buildings. Adult females select common roost sites and rear their young in suitable buildings, usually older structures, close to water and woods where flying insects are plentiful. The actual roost is normally in a dark, warm and poorly ventilated area such as an attic, crawl space or wall space.

Incessant squeaks, scratchings and other bat noises in attics, walls and chimneys can be emotionally irritating. Bat droppings and urine are unsightly and can stain walls and other wooden surfaces and cause odor and health problems. Insects can be attracted to these wastes. Parasites such as ticks, mites and fleas are found on bats and may bite humans in areas where large numbers of bats congregate. Bats, like all mammals, can also carry rabies.

Bats and Rabies

Rabies is a serious viral disease often associated with bats. However, less than 0.5 percent of all bats in Montana normally carry this disease. Most potential exposure to bat rabies will be prevented if bats are left alone. Bats on the ground, resting in direct sunlight or demonstrating other abnormal behavior such as daytime flight should be avoided. Do not allow children or pets to play with bats.

Vaccinate dogs and cats against rabies. Pets that are bitten and that were not innoculated against rabies are normally quarantined or destroyed. Persons bitten by a bat are treated against rabies. Treatment is discontinued if the bat is captured and it tests free of the rabies virus.

Consider all bat and other animal bites as serious and as a potential rabies exposure. Quickly and thoroughly wash all bite or scratch wounds with soap and water and seek prompt medical attention. If possible, capture the bat that has bitten a person or pet. Wear gloves to handle all suspected rabid animals. Do not damage the head because the test for rabies is done on brain tissue. Place the bat in a sealed container and deliver it to the nearest veterinarian or to the Montana Department of Livestock (444-2043) for rabies analysis. Keep the carcass cool but do not freeze unless there is not other option.

Controlling Bat Problems

The most effective and only permanent solution to bat nuisance problems in buildings is to "bat proof" by making the building inaccessible to bats. Often there are only a few

Fig 1. Potential Bat Roost Sites in a Structure.

openings used by bats to enter a building, which makes batproofing quite easy. Some older homes may have many small openings which make excluding bats more difficult. Little brown bats can enter buildings through a 1/4 in. wide space. Look for feces droppings or dark stains on exterior walls or windows to identify points of entry.

Normal bat entry points, especially on older homes, include:
- under roof overhangs where wood may be warped, shrunk or rotted;
- around loose vents;
- through cracks under loose flashing;
- at louvers, eaves or cornices;
- under loose roofing or siding;
- under doors and around windows;
- around chimney pipes; and
- where wiring and water pipes enter a building.

Repair and sealing of these and other potential entry points will exclude bats.

All bats should be out of a building before bat proofing begins. The best time to bat proof is in the fall when bats, including the little brown bat, the most common species to occupy buildings, migrate from buildings to their winter roosts. Never bat proof a building in June or July because flightless young will be trapped inside to die. The adult bats will also be reluctant to leave their young and may be trapped inside as well. Enclosed bats will suffer and die and cause an odor problem.

Big brown bats may occassionally hibernate in buildings in Montana and may still be present in a building in the fall. However, most bats tend to rear their young in one place and hibernate in another location.

There is a good chance that most buildings with bats in the summer will be vacated in the fall. If bats are still present after September, begin sealing all entry except one or two major accesses. Not all bats will leave at once and some are bound to remain in the building. To prevent the inconvenience of having to open and reopen the remaining access holes install a one-way device to allow bats to leave but not return (fig. 2). After several days, remove the devices and plug the holes premanently. A simple one-way device can be made using a plastic bag with the bottom cut out. Attach one end of the bag securely

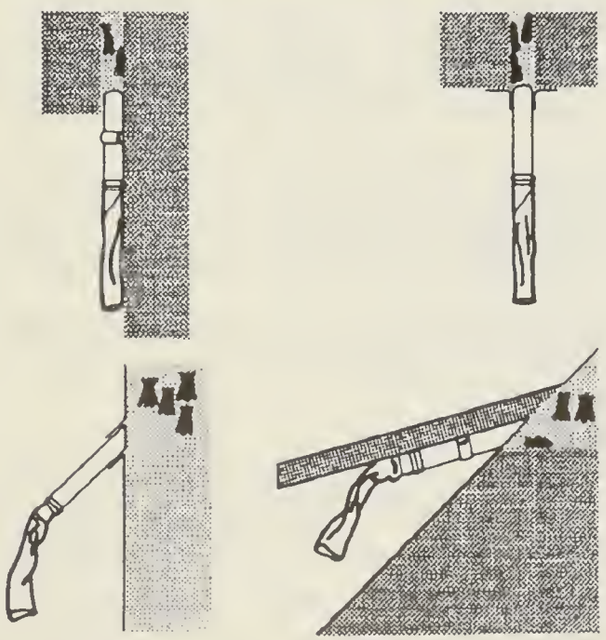

Fig 2. One-way plastic valves which allow bats to leave structure but not re-enter.

over an opening and allow the bag to hang loosely. Bats will drop down and out of the bag as they exit, but can not re-enter.

Be systematic and thorough when batproofing. Seal all cracks or holes 1/4 in. or larger in diameter. Make bat counts and notice where bats exit. Leave the main bat exits open until last, then use a one way valve or plug these final holes in the evening after all bats have left.

Bats do not chew wood or other building materials as rodents do. Consequently, you can use many materials such as insulation, screen, caulk, flashing, weather stripping or steel wool to exclude bats.

Many types of commercial caulking compounds and putty or oakum can be applied to cracks, holes and crevices. Spray-on foam sealants, available in an aerosol spray can, will also work well to seal cracks and crevices.

Seal spaces under doors with weather stripping to exclude bats and other nuisances. Replace or secure damaged, loose or rotted boards, siding, roofing or other materials. lnstall flashing where walls meet the roof or chimney and at other joints. Flashing is usually made from galvanized metal, copper, aluminum or stainless steel. A flashing called "Flashboard" is an effective material for batproofing and has the advantages of flexibility, self-adhesiveness and convenience.

Ensure all vents are properly installed. Place screen over vents with openings 1/4 in. or greater. Hardware cloth 1/4 in. mesh can be stapled over vents. Keep chimney dampers closed when not in use. Spark arresters or rust-resistant bird screens should be installed on chimneys to prevent bat entry.

Fill spaces in walls and roofs used by bats with fiberglass or rock wool insulation. This also improves the buildings insulative efficiency. Bats should not be present when this is done because if they are trapped inside they will die and decay.

Many houses are constructed using cedar shakes or shingles both for roofing and siding. Occassionally, Spanish-style tile roofing is used in Montana. Contruction of this type is not tight and provides bats with innumerable roost sites under the shingles. In most cases, the bats will not have access into the structure but may be heard from the inside. Caulking is impractical in these situations. Polypropylene bird netting can be used on problems of this type. The netting, which is UV light resistant, can be spread over the roofing or siding and will last several years before replacement is necessary. The 1/4 in. mesh netting is not invisible but blends in fairly well against the structure. It is the only practical method of bat exclusion for this type of problem.

Repellants

Naphthalene crystals use in enclosed areas such as an attic **may** repell bats from the area. Place the crystals on the floor or between walls or hang in loose mesh cloth bags from attic rafters. Use crystals in preference to moth balls because crystals volatilize more effectively. If spread on the floor, place crystals on paper plates to make clean up easier. Use about 5 lbs. per 2000 cubic feet of attic space. Bats are repelled as the napththalene vaporizes. Once all the chemical is gone, bats frequently return unless the structure in bat-proofed.

Floodlights or light bulbs strung through the attic to illuminate bat roosting sites may cause bats to leave. The entire area must be well lite or bats may remain in unlite areas.

Care in the installation of lights and frequent monitoring is important to prevent fire.

Drafts from open windows or doors can repel or discourage bats from roosting in a structure. These opening also allow access so the draft should be a greater deterent than the opening is an attraction. Electric fans can be used to create drafts and to direct them.

Contact sticky repellant sometimes used to repel pest birds from building are usually not effective against bats. They tend to avoid or crawl over them.

Occassional a bat may enter a living area through an open window or chimney. If this happens after dark it is best to darken the room and open a door or window. The bat will usually leave on it own or can be flushed out with a broom.

Poisons

Only a single poison, an anticoagulant powder, is registered for controlling bats. It should be used only as a last resort. It is a restricted pesticide and best applied only by pest control professionals. Killing bats only delays the permanent solution of bat-proofing. If the site provides a desirable roost for bats once, other bats will continue to use it in the future. Use of this anticoagulant poison may scatter sick and dying bats to locations accessible to children and pets increasing the chance of bat bites. Bats dying in the structure may die in inaccessable locations resulting in odor problems when they decay.

Bat Conservation

Bat numbers in the United States and throughout the world have been declining. This is largely the result of loss of habitat which provide food and shelter and distrubance of caves and other hibernation

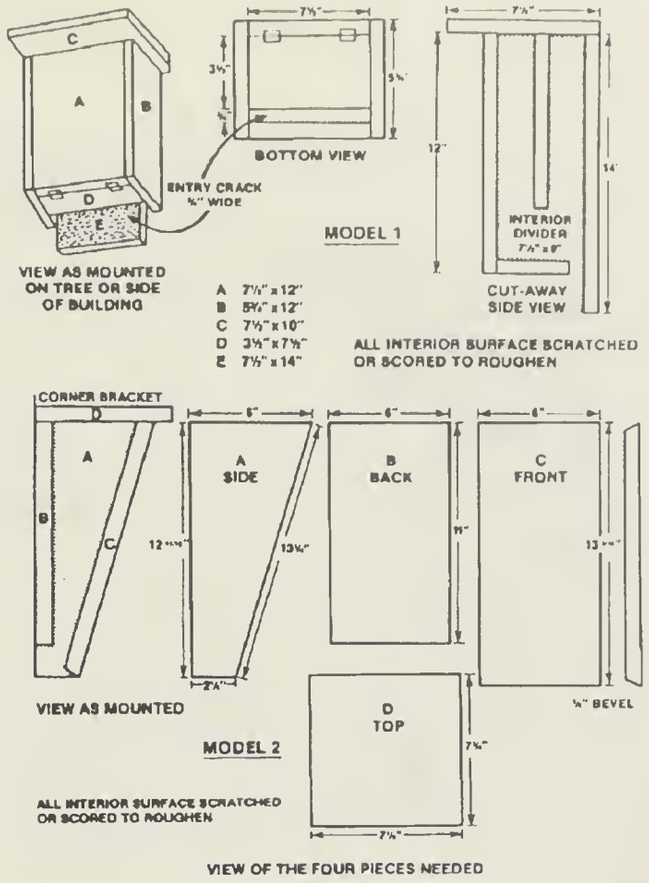

Fig 3. Bat house design. Place 10 - 15 ft. above ground in sites protected from afternoon sun.

sites. Public awarness and appreciation of the beneficial aspects of bats for people is important in reversing this decline.

Because bats can be effective in controlling nusiance insect such as mosquitoes, you may wish to attract bats to your home or acreage.

Bats can be attracted to roosting boxes just as birds are attracted to bird houses. Ideally, bat houses should be within 1/2 mile of aquatic habitats. Those located at a greater distance have a much lower chance of being occupied by bats.

Figure 3 shows one model of a bat house. The width of the entry space is important and

should not exceed 1 in. The ideal width is only 3/8 in. All inner surfaces must be rough enough to permit bats to climb with ease. Surfaces may be constructed of rough lumber or roughened with a steel brush or coarse file.

Place bat houses on tree trunks or buildings about 10 to 15 feet above ground, preferably where they receive sun in the morning and shade in the afternoon. Since bats are temperature sensitive, place the house at a site where it warms up quickly in the morning but does not get too hot in the afternoon. Make the house from 3/4 to 1 in. lumber to provide some insulation over night. Houses can be left unpainted or they can be painted or stained a dark color to better absorb heat in the morning. 4/90\bat.wp

For more information on bat management contact:

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